

ABSTRACT

An inline repeater that uses a forward-pumped DRA that can use a pumping light source such as an FBG pumping light source and a fiber laser, which are the most commonly used, and an optical fiber communication system are realized. The optical fiber communication system comprises silica fiber as a gain medium for Raman amplification to amplify a signal light; a pumping light source that emits a pumping light that co-propagates through the silica fiber in the same direction as the signal light; and a multiplexer disposed between the silica fiber and the pumping light source that multiplexes the signal light and the pumping light, with the multiplexer being provided with a means to multiplex the signal light input thereto having a wavelength longer than the zero-dispersion wavelength of the silica fiber and the pumping light emitted from the pumping light source, and the pumping light source being equipped with a means to emit pumping light, with the longest wavelength of the pumping light being shorter than the shortest wavelength of the signal light by a frequency difference on the low-frequency side of 13.7 to 30 THz.